



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE PATH AS A FACTOR IN HUMAN EVOLUTION

By RALPH E. DANFORTH

UNIVERSITY OF PORTO RICO

THE path and the wilderness, formerly in harmony, are now at odds. Certain elements of the wilderness are essential to the best evolution of man. The path is also essential; therefore a reasonable measure of harmony between it and the wilderness should be restored and retained. This restoration and retention might be included in our broad term conservation.

Millions of years before man became human some of the primitive worms and insects made paths; some of the lower vertebrates did likewise, and many of the earliest mammals of remote Triassic times doubtless made paths and runways of many sorts. The Triassic, Jurassic and Cretaceous together constitute the Mesozoic, or age of reptiles, which according to some geologists lasted nine million years; and throughout this long time our earliest mammalian ancestors were small creatures, the largest not exceeding a rat or rabbit in size, hiding for their lives from many a reptilian foe, both large and small.

With the close of the age of reptiles and dawn of the age of mammals, which some estimate to have been three million years ago, mammalian species evolved with great rapidity and in many directions. Mammals small, medium and large, and of wonderful diversity were produced. Of these some still made paths of one sort or another, and many of their constantly evolving offspring continued to do likewise.

Among our modern mammals we now find many famous path-makers. When man's more recent ancestors departed from arboreal life and remained more upon the ground again, like their remoter pre-arboreal ancestors, they must have made frequent use of the ready-made paths of their contemporaries, some of which fell victims to early man, while others at times made of him a victim. From that time, throughout the many thousands of years of savagery man made an increasing use of paths, himself becoming an important pathmaker where he walked from place to place repeatedly, yet often departing from his paths to search the all-surrounding wilderness.

Some of the ablest students of human evolution to-day assert that earliest man lived in a part of Asia where the physiography and climate were changing so that the abundant rain-forests were gradually forced to give place to a dryer and more open park-like country; changes which obliged the arboreal inhabitants either to migrate or to perish or to modify their mode of life. Potent as such environmental changes may have been as aids to man's transformation from an arboreal creature to a terrestrial man, there were doubtless other deeper-seated factors contributing to the same end. This change from an arboreal to a terrestrial life has been a fruitful field for thought research and discussion among men of science, and it is likely that more thoroughgoing investigation may throw more light upon it. But this is a digression from my theme. Whatever the causes, the fact of the change is plain, and not doubted by any biologist.

Throughout the long, ensuing age of human savagery man had his paths, yet breathed the same pure, dust-free air to which the lungs of his mammalian relatives and ancestors had been accustomed. The lungs of his reptilian and amphibian relatives and ancestors breathed air equally pure.

The age of savagery gave place to the age of barbarism. Some of man's paths became crude streets and highways. Domestic animals, small or large, strayed or were driven along the ways. The wilderness became more netted with paths, and portions of it here and there gave place to crude agriculture. But it still was essentially the same wild, beautiful, fascinating thing. Wonder and mystery, game, adventure, peril, excitement and peace were found in the wilderness. The forests and the mountains, the lakes, valleys and streams ever lured the early children of men to wander into the wilderness, seek out its treasures, and learn its secrets by a life of daily familiarity. Some, less bold, dreaded the wilderness. Some, precocious in urbane awakenings, kept to the beaten paths. Some, indolent or effeminate, stayed to be pampered or scolded by the women. None of them remained within cave or within hut very long, for daylight was preferable to darkness or flickering firelight when storm or sleep did not drive them in. Window glass was not to come until long after civilization had replaced barbarism. Any opening in a dwelling admitted not only light, but volumes of outdoor air. Woman's work must be done out in front of the primitive dwelling place for light. The indoor life could not be lived by any one. Such were our forerunners for countless generations. Our artificialities of the present day are of mushroom growth, having sprung up, as it were, in a moment in contrast to the long ages we have been living the more natural, outdoor life. Our muscles were built for daily exertion, prolonged and varied,

not for the rocking chair, office chair and automobile. Long hunts over the mountains, long toil in the fields or at domestic tasks, these were what trained our muscles, developed our frames, and made our forebears the sturdy, worthy stock from which our virile race has sprung. To-day are any of us wasting, through disuse, our inheritance of strength? Are any developing one-sidedly a well-rounded nature? Do any miss the free, large, open spaces, the virgin forest, the untrammeled wilderness? Do any long to step forth in the morning into a world of natural beauty, reaching out in boundless prodigality as far as the eye can see? Do any feel a sense of loss, as though something great had gone, not easily to be restored? It would not be strange if many felt such secret stirrings, after so long an inheritance in the wilderness and so short an adaptation to our present conditions. The wonder is that so many should have lost, in a few paltry centuries, or even in a few actual years, the inheritance and the instincts of the ages. Man's marvelous plasticity has made possible to-day's civilization. The human species has shown great adaptability and variability, a distinction which is shared by many other species, notably the internal parasites, which have made such peculiar changes of habit and habitat in adapting themselves from a free outer life to a life of confinement and parasitism within some organ of its host. Many and curious are the changes of life habit which these species have undergone; and not only have their habits changed, but their external and internal structures have been modified, in some cases involving the loss of most of the nervous system and all of the digestive system. There has not yet been time for man to undergo any physical changes so far-reaching and so permanent as these, but in the little time in which our European ancestors have crowded their paths and their dwellings together into what we call cities, with their smoke and dust and artificial floor and scenery, our life has changed to such an extent that our bodies are changing in response so quickly as to alarm the trained physical examiner.

Life in factory and office and store and home is as different from the life our ancestors led through the ages as can well be imagined, more different even, in its essential features, than our terrestrial wilderness life was from the preceding arboreal life. The effects on both mind and body are equally radical. The ever plastic human being responds to these inner and outer changes with a speed which, compared with the geological ages of past evolution, bids fair to produce a radically different creature from that which we have known as our human selves in the past.

Three courses are open to us, and a fourth might be conceiv-

able, but this fourth—a complete break with “modern civilization”—does not seem at all probable. These three courses are: (1) that the whole human race be involved in the rapidly growing whirlwind which in its present stage of development we call, rather proudly “our civilization” as though we had deliberately planned it as a complete entity, when no one ever conceived of such a thing, and no one even to-day has the ability properly to evaluate the civilization now in existence; (2) that a part of the human species, reluctant to mutate or evolve into the strange new species which the onward sweep of “civilization” is producing, deliberately keep themselves apart in the yet remaining open places, guarding these zealously as the domain of the creature known to-day by scientists as *Homo sapiens*, the remainder of the race evolving rapidly into some other kind of *Homo*, or even into a different *genus* in time; (3) that the entire race of *Homo*, not wishing to become anything other than *sapiens*, but rather more so, and making use of all his splendid new means of intercommunication the world around, construct an intelligent plan to conserve all the best that the wilderness contained and preserve these perpetually in close conjunction with the best, and only the best, which innovations have to offer.

The wilderness and the path, so easily at odds to-day, must be restored to harmony, a harmony built upon a foundation which cannot again be shaken. The best of all that earth and heaven can yield is none too good for lordly man as he aspires to a better, greater man in future.

Many questions will arise in evaluating the permanent worth of the host of innovations daily pressing their almost irresistible claims upon us. But we will not willingly let the spirit of the machine grind us in its cogs until we are ourselves converted into mere machines of clay, reflecting the nature of the machine—civilization—which ground us.

The great machine civilization, embracing all its component machines and inventions and discoveries and methods of life, would then need to be kept thoroughly human, humanized by all the best that is in the human heart, with all the love of the beautiful, with all the esthetic joy in wild and lovely scenery, with all the satisfying health from breathing air of wilderness purity, with all the thrill of action when the muscles and sinews of the man propel him exultantly through the forest, over the mountains and through the waters. No mere combination of automobile and cloud of dust and office chair can truly satisfy the *Homo sapiens* of the ages. The path must lead quickly to the wilderness. The wilderness must even pervade and beautify the aggregations of our paths. The bare, artificial ugliness of the modern city must be stripped

from it and in various ways replaced by natural beauty. The dust nuisance must be completely removed from all roads and paths, which should be clean and sweet as the woodland lane, and these roads should be so wisely and artistically planned that as few as possible may suffice. The wilderness should everywhere be encouraged and perfected and utilized to the full.

The wilderness is fully able to supply to the maker of paths much which will administer not only to his esthetic joys, but also to his highest and most lasting economic good. The ideal world, in the future, will perfectly harmonize and blend the wilderness and the path.

The function of the path as a factor in human evolution has been apparent throughout the preceding lines. Upon the number, arrangement and nature of these paths, roads and streets depends the nature of our civilization and the nature of the life we lead, and this in turn reacts constantly upon ourselves, "body, mind and estate." By our evolution we mean all those changes which take place in our habits of life and thought, as well as the physical changes constantly taking place in all living beings. Man is one of the most plastic and changeable of beings, quickly responding to factors of every sort.

Man can not, even if he should wish to, remain the same from one century to another. Recent centuries have marked, perhaps, the greatest changes in the given time, for the greater changes in our past were the product of uncounted ages. The path will always be an important factor in our progressive evolution by reason of the profound, or better, the fundamental bearing it has upon the kind of life we lead and the kind of being we are or are to become.

Where the path leads man will follow. To the kind of path man's foot conforms itself, and his lungs and his mind and his muscles and his stomach and his spirit are all affected directly or indirectly by the nature of the path and where it leads. Man may to a great extent be the creator of the world he lives in; he will always be its mirror.